# BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

# IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images, please do not report the images to the Image Problem Mailbox.**

**PCT** WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : B65D 75/58

A1

(11) International Publication Number: WO 99/02423

(43) International Publication Date: 21 January 1999 (21.01.99)

(21) International Application Number: PCT/EP98/04239

(22) International Filing Date: 8 July 1998 (08.07.98)

(30) Priority Data:
08/889,189 8 July 1997 (08.07.97) US

(71)(72) Applicant and Inventor: EL MASSIOUI, Farid [FR/FR]; 8, rue des Nénuphars, F–91640 Briis sous Forges (FR).

(74) Agent: PONTET, Bernard; Pontet Allano & Associés s.e.l.a.r.l., 25, rue Jean Rostand, Parc–Club Orsay–Université, F–91893 Orsay Cedex (FR).

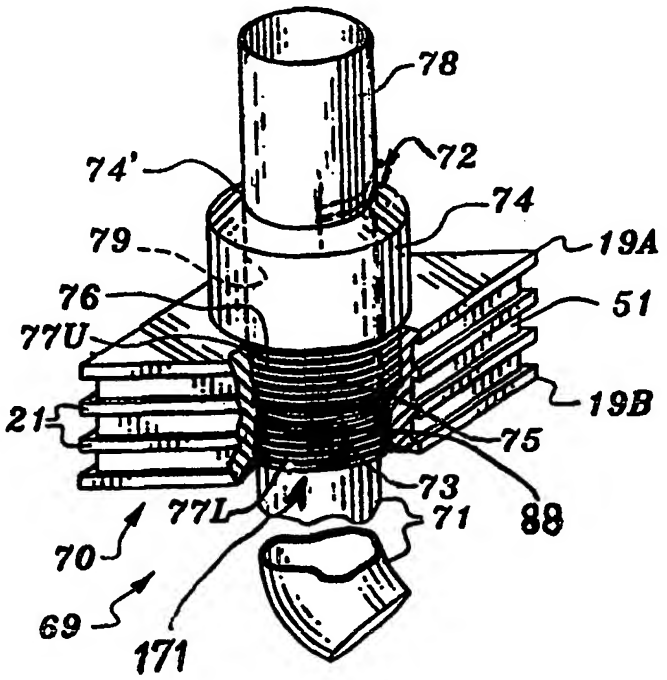
(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published**
*With international search report.*
*Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: FLUID PACKAGE WITH SELF–CONTAINED STRAW

(57) Abstract

A closure (10) for a self–standing pouch (80) designed to hold fluid, which closure (10) includes a fitment (11), having a base (12) and either an integral or removable stem (31), which stem (31) carries an integrated cap (33). The closure (10) may also include a straw (41) that extends downward into the fluid and above the stem (31) or at least a mouthpiece (37). A straw (41) like member in place of a straw can be integral to the fitment, or threadable or otherwise attachable thereto. The fitment aspect may be one piece or two as noted, and if two, is adapted to permit the refilling of the pouch (80) as may be desired. The closure (10) may be placed at various locations on a fluid containing pouch (80).



*FOR THE PURPOSES OF INFORMATION ONLY*

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | |
|---|---|
| AL | Albania |
| AM | Armenia |
| AT | Austria |
| AU | Australia |
| AZ | Azerbaijan |
| BA | Bosnia and Herzegovina |
| BB | Barbados |
| BE | Belgium |
| BF | Burkina Faso |
| BG | Bulgaria |
| BJ | Benin |
| BR | Brazil |
| BY | Belarus |
| CA | Canada |
| CF | Central African Republic |
| CG | Congo |
| CH | Switzerland |
| CI | Côte d'Ivoire |
| CM | Cameroon |
| CN | China |
| CU | Cuba |
| CZ | Czech Republic |
| DE | Germany |
| DK | Denmark |
| EE | Estonia |
| ES | Spain |
| FI | Finland |
| FR | France |
| GA | Gabon |
| GB | United Kingdom |
| GE | Georgia |
| GH | Ghana |
| GN | Guinea |
| GR | Greece |
| HU | Hungary |
| IE | Ireland |
| IL | Israel |
| IS | Iceland |
| IT | Italy |
| JP | Japan |
| KE | Kenya |
| KG | Kyrgyzstan |
| KP | Democratic People's Republic of Korea |
| KR | Republic of Korea |
| KZ | Kazakstan |
| LC | Saint Lucia |
| LI | Liechtenstein |
| LK | Sri Lanka |
| LR | Liberia |
| LS | Lesotho |
| LT | Lithuania |
| LU | Luxembourg |
| LV | Latvia |
| MC | Monaco |
| MD | Republic of Moldova |
| MG | Madagascar |
| MK | The former Yugoslav Republic of Macedonia |
| ML | Mali |
| MN | Mongolia |
| MR | Mauritania |
| MW | Malawi |
| MX | Mexico |
| NE | Niger |
| NL | Netherlands |
| NO | Norway |
| NZ | New Zealand |
| PL | Poland |
| PT | Portugal |
| RO | Romania |
| RU | Russian Federation |
| SD | Sudan |
| SE | Sweden |
| SG | Singapore |
| SI | Slovenia |
| SK | Slovakia |
| SN | Senegal |
| SZ | Swaziland |
| TD | Chad |
| TG | Togo |
| TJ | Tajikistan |
| TM | Turkmenistan |
| TR | Turkey |
| TT | Trinidad and Tobago |
| UA | Ukraine |
| UG | Uganda |
| US | United States of America |
| UZ | Uzbekistan |
| VN | Viet Nam |
| YU | Yugoslavia |
| ZW | Zimbabwe |

TITLE OF THE INVENTION: FLUID PACKAGE WITH SELF-CONTAINED STRAW

FIELD OF THE INVENTION

This patent application relates to pouches used as packaging for fluids preferably for soft drinks, which pouches have a tamperproof integrated straw disposed therewith. More particularly, this invention is an improvement to the DOY-PAK™ stand-up pouch.

BACKGROUND OF THE INVENTION

It is known that Louis Doyen of Lyon, France, alone and with others has obtained a series of patents pertaining to the manufacture of plastic stand-up pouches and the pouches themselves, which are used primarily for beverages. In the U.S.A., one well known brand of product is the Capri Sun® line of juice drinks made and distributed by Kraft Inc. The products sold under this trademark are individual servings of a juice drink in a sealed pouch. A plastic wrapped pointed straw is removably adhered to the package of juice. In order to access the contents of the pouch, one unwraps the straw, and carefully pierces the packaging at a predefined location, wherein the outer layer of the multilayer package has already been die cut utilizing the pointed end of the straw. Usually the tip of the straw will pierce the « exposed » aluminum foil and the plastic layer there beneath. Attempts to pierce the package at other locations than the pre-defined one are usually not successful due to the tough outer layer of plastic employed for these pouches.

The technology of these pouches is disclosed and claimed in the following U.S. Patents:

| | | |
|---|---|---|
| L.Doyen et al | 3,192,095 | 6/29/65 |
| Boquet & Doyen | 4,023,700 | 5/17/77 |
| Aquetant & Doyen | 4,010,786 | 3/8/77 |
| Doyen & Doyen | 3,935,993 | 2/3/76 |
| Doyen & Doyen | 3,637,133 | 2/25/72 |
| Doyen | 3,583,132 | 6/8/71 |
| Doyen | 3,514,061 | 5/26/70 |
| Doyen et al | 3,380,646 | 4/30/68 |

Of course other people have made advances in the

pouch and closure art as well. Thus applicant is also aware of US Patents issued to:

| | | |
|---|---|---|
| Weikert | 3,783,920 | 1/6/74 |
| Murray | 4,658,434 | 4/14/87 |
| Ichikawa | 4,669,124 | |
| Hoyt | 4,732,299 | 3/22/88 |
| Ichikawa | 4,783,176 | |
| Chatourel | 5,094,367 | 3/10/92 |

All these known containers have expensive closures, which are difficult ot attach to the pouch on a manufacturing line. Despite the cost, which is included in the beverage cost for the customers , the container is intended for disposal once empty. The use of the container for drinking purposes is uneasy.

It is therefore an object of this invention to provide a new closure for pouch containers, especially but not limitatively of the self-standing type.

It is another object to provide a closure for pouch type containers that can be heat sealed into position.

It is a further object to provide a closure for a pouch such that the pouch can be refilled if desired.

It is a yet further object to provide a closure that incorporates a straw thereon.

It is a still further object to provide a closure for a pouch which can be positioned at various locations on the pouch, including top, side, and angularly between the top and side.

It is an additional object to provide a pouch closure with an integrated cap.

It is a yet further object to provide a pouch closure that includes a straw and or a bucal mouthpiece and/or an integrated cover over the mouthpiece.

It is a still further object to provide an easily manufactured closure and/or an easily manufactured container incorporating the closure.

Other objects of the invention will in part be

obvious and will in part appear hereinafter.

The invention accordingly comprises the device possessing the features, properties, and the relation of components which are exemplified in the following detailed disclosure and the scope of the application of which will be indicated in the appended claims.

The structures which are claimed allow, separately or in combination :

- easy mounting at a local position along a seal line of a pouch, this position being intermediate between two aligned sealed sections along an edge of the pouch, or being aligned along one end of a sealed edge, or else being the main part of the length of a short oblique corner edge;
- safe sealing thanks to pointed base ends of the closure which each coincide with a transition line between a region where two pouch lips are sealed together and a region where the closure base is sealingly inserted between the lips;
- easy manufacturing of the closure due to multi-part structure of the closure;
- possibility of easy cleaning and refilling, especially at home, thanks to part of the tubular portion being extractable and reinsertable from and into the base from outside the pouch, whereby the container is re-usable by the customer for any purpose once initial fluid is exhausted.

For a fuller understanding of the nature and objects of the invention reference should be made to the following detailed description, taken in conjunction with the accompanying drawing.

## BRIEF DESCRIPTION OF THE FIGURES

FIGURE 1 is a perspective view of the first embodiment of the invention showing a closure comprising a one piece fitment horizontally mounted with the cap in place and no straw.

FIGURE 2 is a similar view to FIGURE 1 wherein the

fitment is angularly disposed on a pouch.

FIGURE 3 is a close-up plan view of the fitment as in FIGURE 1, but with the cap removed.

FIGURE 4 is a view similar to FIGURE 3 of a one piece fitment with an integrated straw attached thereto.

FIGURE 5 is an exploded perspective view of a second embodiment of the closure of this invention, wherein the mouthpiece is integral with a straw, forming a unit that carries a stopper member and extends through the fitment.

FIGURE 6 is a perspective view of the embodiment of figure 5 in the assembled condition;

FIGURE 7 is a perspective view of a clear pouch with a third embodiment of the closure shown horizontally disposed at a corner of the pouch, with the cap removed from the mouthpiece, and the removable straw disposed downwardly from the fitment.

FIGURE 8 is a top perspective view showing the two pieces of the closure engaged.

FIGURE 9 is a bottom plan view of the closure shown in FIGURE 7, without its straw.

FIGURE 10 is a perspective view, partially cutaway, of a three piece closure consisting of a fitment, a removably insertable stem, and a separate straw and mouthpiece unit.

FIGURE 11 is a perspective view, also partially cutaway, of another two piece closure consisting of a fixed stem integral with the base, and a threadably engageable straw and mouthpiece unit.

FIGURE 12 shows an angular disposition of a closure according to this invention, which closure is without a straw.

FIGURE 13 is a cutaway view showing an angularly disposed closure according to the invention with a straw.

FIGURE 14 is a rear elevational view of a prior

art pouch with a straw externally mounted thereon. (PRIOR ART).

FIGURE 15 is a front elevational view thereof, (PRIOR ART).

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGURES 1-4 the first embodiment of this invention is seen. As has been pointed out previously, the concept of forming a stand-up pouch for holding drinkable fluids such as juice is well known. Such drinks are available in the U.S.A. and elsewhere under one or more brand names directed at the youth market. These pouches suffer from the fact that the access to the contents is obtained by way of an externally mounted pointed straw which is removably adhered to the package's rear face, removed from its wrapper and then used to puncture an area of the obverse face of the package such that the contents can be sucked out. See FIGUREs 14 and 15, which show the wrapped pointed straw and the defined point of insertion which lacks the thick plastic layer over the film inner packaging layer there beneath.

In FIGURE 1 a typical self-supporting pouch structure 80 having a bag portion 82 disposed beneath a heat or sonic sealable upper edge 81, formed of two members or lips 81A and 81B. Members 81A and B are sealed around a closure 10 which forms the subject matter of this invention. This closure 10 comprises a one piece fitment 11 having a boat shaped base 12, having a point at each end 17A, 17B, with the two sides 13, 15 depending linearly outwardly from a first point, to a maximum amount, then curving around and then inwardly again a similar amount toward and to the opposite point. Base 12 also has an upper surface 23 and a lower surface 25. The invention is deemed a closure because in a sense it closes off the pouch which is heat sealed or otherwise sealed against it. It is apparent from figure 1 that both sides 13, 15 form

together a peripheral face of the base and that each lip 81A or 81B extends along and adjacent one respective side 13 or 15 from one point 17A to the other 17B. Each point 17A or 17B is an edge which is generally transverse to the longitudinal direction of the pouch edge along which the lips 81A and 81B extend. Each point 17A, 17B is at an acute angle and coincides with one of the transition lines 18A, 18B between one of the regions where the lips 81A, 81B are directly adjacent to each other and the region where they are separated from each other by the base. Thus, the latter region is situated between two regions where the lips are adjacent to each other along a same sealing line of the pouch. Methods for inserting a closure into a sealing line of a pouch are known for cylindrical closure bodies, the present closure being simply easier to insert and to seal thanks especially to its boat-shape. The base includes integrated uniform outward extending ribs 19A and 19B which extend linearly from the upper and lower surfaces respectively, and at least one intermediate rib 21 spaced from the top and bottom ribs. A stem 31 is mounted to the fitment 11, and said stem is closed off by a cover 32 comprising a cap 33 and a flexible handle 35 attached to both the stem 31 and cap 33. Stem 31 can be formed as an integrally molded member as here, or may be a separate member as will be discussed with respect to a second embodiment involving a two piece fitment.

The reader's attention is now directed to FIGURE 2. Here it is seen that the stem 31 has a central throughbore 34 which communicates with a preferably similar cross section throughbore 36 of the base 12. Either throughbore may be of greater diameter than the other without affecting the operability of the structure, though preferably they are of the same cross section. A tubular bucal mouthpiece 37 extends upwardly from the stem 31, a suitable amount as to be

comfortable to the average person, usually about 25mm to 40mm, and is of an external cross section substantially egual to the cross section of the throughbore 34. That way there is no impediment to fluid flow from within the pouch 80 seen in FIGURE 1. Stem 31 preferably has a tapered upper edge 40, shown designated in FIGURE 3.

Cap 33 is seen to have a recessed area 39 sized in cross section slightly smaller than the mouthpiece 37 in order to snugly and leak-tightly receive the mouthpiece therein as is depicted in FIGURE 2 under a slight elastic expansion of the cap. While conveniently shown as being of a circular cross section, bores 34, 36 and recess 39 could be square or hexagon or some other shape as may be desired. Cap 33 may have an opposite taper lower edge (lower edge when seen in the operative position of inversion). Such tapered edge is designated 42, also in FIGURE 2.

Whereas in FIGURE 2, the mouthpiece 37 is seen in dashed lines, here in FIGURE 3, it is readily seen. Mouthpiece 37 has a central bore 38, that is in fluid communication with aligned bore 34 and bore 36 of the base. These three bores form the path of travel from the pouch up to the mouth of the user, not seen. FIGURE 4 is a view similar to FIGURE 3, but for the presence of the elongated tubular member 41, the bore of which is designated 43. The combination of the mouthpiece 37 with its hole 38, the stem 31, with this bore 34, the bore 36 in the base 12, and the elongated tubular member 41 with its bore 43, all of the bores being in fluid communication, can be considered as a straw 44, a device well known in the art. In this embodiment tubular member 41 is integrally molded with and is attached to base 12, just as the stem 31 and mouthpiece are molded therewith as a one piece unit (along with cover 32 only seen in part in this view).

In order to reduce manufacturing costs as would be

associated with a complex molded item as shown in FIGURE 4, the closures of FIGURE 5 and the variants thereof were created.

In the discussion to follow, like numbers refer to like parts or portions thereof and separate discussion will not be recited in such instances. The discussion now moves to FIGURE 5 and the next embodiment; namely, closure 49.

The closure's fitment 50 is a boat shaped base 51 having a pointed leading and trailing edge 17A, 17B, similar ribs such as 19B and 21, and two sides 13, 15, each of which extends linearly diverging a finite distance from one of the pointed edges, then arcuately and then converging linearly inward the same finite amount to the second point at the opposite end of the base 51. Base 51 also includes a threaded throughbore 52.

A circular stem 53 having a threaded lower section 54 of substantially the same cross section as the bore 52, is matingly engageable with the threaded bore 52 of the base 50. Upstanding from the stem 53 is mouthpiece 57 which is a tubular member having a throughbore 58 which is in fluid communication with the bore 56, through the stem 53, which bore is seen in FIGURE 5. Mouthpiece 57 is preferably of a smaller cross section than stem 53 and of a suitable elevation as to be comfortable to the average mouth.

Extending downwardly from the threaded section of the stem 53 is an optional down tube 59 having a bore 60 in fluid communication with each of bores 58 and 56. Down tube 59 may be of the same or different cross section as the mouthpiece 57. When stem 53 is threadedly engaged into the base, the down tube 59 will extend slightly beneath the lower surface 25 of the fitment. When such an optional down tube is employed, it can serve as a means to receive a frictionally engaged elongated tubular member of a slightly greater

cross section. Thus reference is made to FIGURE 6 which shows the presence of an elongated tubular member 61 with its bore 62. While shown as a friction slide on fit, it is also seen that one or more outwardly extending encircling ribs could also be put on the down tube over which the elongated tubular member would be stretched tightly to ensure a long lasting fit. For ease of understanding, no cover and handle are seen present in FIGURE 6. Such a cover, if present, would be similar to the one discussed with respect to FIGURES 1 and 2.

The embodiment of FIGURE 7 will be described only for its differences over that of figure 5 and 6. The stem 53 and mouthpiece 57 are integral with the base. The down tube 64 is now a separate part provided with an upper threaded flange 65 for thread engagement with a lower threaded portion 52' of the bore of the base. Thread portion 52' is advantageously of a larger diameter than a non-threaded upper section of bore 52 so that the down tube can be threadingly inserted into the base until abutment against the shoulder between both sections 52, 52'. Cap 33 is provided with an inner axial cylindrical boss 133 that sealingly engages the inner bore of mouthpiece 57, in addition to sealing engagement of the inner peripheral wall 39 of the cap 33 with the outer peripheral wall of mouthpiece 57.

FIGURE 8 illustrates the assembled closure of FIGURE 5 or FIGURE 7, showing stem 53 with its associated mouthpiece onto the base 51. Throughbore 52 is only partially threaded.

In FIGURE 9 a variant of the embodiment of FIGURE 5 is seen. While the stem 53 threads into the base 51, no down tube 59 is present on the underside of the stem. However, the internal threads 52' are continued downwardly to the lower opening 63 on the lower surface 25 of the base 51. This permits a threaded elongated tubular member 64 similar to that of figure 7 to be

threadingly engaged into threads 52' such that elongated tubular member 64 can depend downwardly into a juice or other liquid laden pouch, a portion of which is seen in FIGURE 7.

Handle 35 and cover 32 are the same as previously disclosed with respect to FIGURES 1 and 2. Thus the recess designated the mouthpiece receiver 39 within the cap 33 of the cover is present here as well. Handle 35 is shown in a taut position in FIGURE 7 to illustrate the separation of the cap from the mouthpiece. Designator 80 is to show the environment of the pouch for the closure of this invention. As mentioned earlier the lips 81A and 81B are heat sealed together or sonically welded to the fitment base 51 of this embodiment. See FIGURE 7.

The discussion now moves to FIGURE 10. It is seen that the closure of this embodiment has three elements; namely, a base 51, a straw 71 and mouthpiece 78 assembly, and a removable stem 74 with no mouthpiece on the stem. The closure (69)'s fitment 70 in FIGURE 10 has a base 51 similar to the base 51 previously discussed relative to FIGURES 8 and 9, apart from the differences to be discussed hereinafter. The mouthpiece 78 is separated from the stem 74 and is integral with the straw 71. The stem 74 has a throughbore 79, centrally located to receive a connector pipe 171 coaxially connecting the mouthpiece 78 and the straw 71. Stem 74 is annular shaped throughout its axial length, i.e. in a first section above the top surface of the base and along a downwardly depending tubular section 75 thereof, which carries external threads 76 engageable with upper threads 77U of the bore 88 through the base 51. Upper threads 77U have a greater cross section than the lower threads 77L of the bore 88 through the base. Connector pipe 171 is disposed through the tubular section 75 and the opening 79 in the first section 74' of the stem 74. Connector pipe

171 carries exterior threads 73, at a suitable location to be engageable with lower threads 77L of the base. The straw is top insertable and is threaded into the threads 77L. A stop or shoulder is provided on connector pipe 171 above threads 73 about a corresponding shoulder in bore 88, thereby to ensure that the straw is not overly threaded into the threads 77L such as to pass through the base 51. Alternatively, a shoulder or flange 72 shown in dotted lines on the right part of figure 10, of a cross section such that it will not pass through opening 79 of the stem 74, can be provided at the base of mouthpiece 78. Thus, in this embodiment of FIGURE 10, both removable parts, i.e. unit 74, 75 and unit 71, 171, 78, are both extractable and re-insertable from above, i.e. from the outer side of the pouch or outer face of the base, for cleaning and refilling purposes of the container through the wider bore 88 of the base.

The embodiment in FIGURE 11 corresponds to that of figure 10 except that the base 92 has the stem 94 integrated thereon. The stem 94 does NOT include a mouthpiece. The mouthpiece 78 is integral with the straw 71 as described with reference to figure 10. The handle 35 and cover 32 as seen here are of like numbers to elements previously discussed and no further discussion is needed here, other than to indicate that the handle attaches in like manner to the stem as previously discussed. That is, preferably through integral molding as a one piece part. Here external threads 73 carried by the connector pipe 171 engage the internal threads 77 of the base 92. Mouthpiece 78 projects through the opening 79 of the top surface of the stem 94, while the balance of the straw extends downwardly beneath the stem 92 as is depicted. Note also the presence of the tapered edges 42 and 40 for a more aesthetic look, similar to those found in the FIGURE 2 embodiment.

The containers provided with the closures of figures 5, 6 and 10 can be easily cleaned and refilled once empty, due to the possibility of removing from above all the parts of the closure which are threadingly secured to the base, thereby creating a wider access opening to the interior of the container through the bore of the base, which is wider than the bores of the mouthpiece and of the straw.

From a manufacturing point of view the embodiment of FIGURE 11 is cheaper to make than the embodiment of FIGURE 10. But the tradeoff is that by having the stem removable in FIGURE 10's embodiment, the pouch is more readily refillable when the original supply of fluid is exhausted.

FIGURE 12 is a perspective view to illustrate one placement of any of the embodiments of this invention shown mounted in a pouch at one corner. The base of the fitment would be heat sealed at this location in the same manner as the base is shown sealed into place in the pouch shown in FIGURE 7. In this view no straw or down tube is seen, thus requiring the user to raise the pouch toward the sky to access the very last drops of fluid therein.

FIGURE 13 illustrates a corner disposition of the closure according to this invention, with the straw disposed within the pouch. The cover is not seen in this view for ease and convenience. By having a straw or some type of downwardly extending member as previously discussed, the user need not raise the unit as high in the air to access the remnants of the contents. There is less chance for swallowing too big a gulp this way than in the embodiments having only a mouthpiece and no straw below the base member.

The base protrudes radially with respect to the generally tubular portions of the closure, which tubular portion includes the mouthpiece, the stem, the down tube or straw. However, the base is radially

compact. More specifically, the widthwise radial protrusion is limited to a minimum, taking into account the necessary material thickness around the bore of the base. And, the lengthwise radial protrusion is such that the length of the base is equal to about two to four times the width thereof, typically two and a half to three times, i.e. just enough to allow easy insertion of the closure between the pouch lips, and safe leak-tightness especially at the points of the base. The base being thus as compact as possible, the closure is easy to position in any convenient location of a pouch, especially adjacent a corner as shown in FIGURES 12 and 13 (unlike the device of USP 4 732 299).

Let us return momentarily to FIGURE 7. While the discussion of that figure was based upon the use of a stem 53, which is integral with the base, it is also possible that the stem 53 and the mouthpiece 57 be a single element which is threadingly and removably secured in the upper section of the bore of the base. The embodiment of figure 7, either as initially described or modified as just described, can be provided with a down tube 59 intended to frictionnally receive a straw 61, as described in figure 6.

It is seen that my invention represents a significant improvement over the prior art pouch 110 shown in FIGURES 14 and 15. The little opening 111 sometimes can not be punctured by the straw 112 seen on the other side of this pouch, and the straw sometimes separates from the pouch. None of these problems can happen with any of the embodiments of my invention.

While not specifically discussed, it is within the skill of the engineer of this art to also provide a tamperproof seal for the closure of this invention, to prevent the cap of the cover from being lifted for surreptitious purposes by nonpurchasers. While separate stems threadable into the base have been discussed, it is seen that these too can be made tamperproof as may

be deemed beneficial or necessary in certain markets. For example threads maybe made to engage one way only, or a breakaway member may be employed with refillable stem models. This too is within the skill of the art.

Since certain changes may be made in the above described apparatus without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description and in the accompanying drawings, if present, shall be interpreted as illustrative only and not in a limiting sense.

The embodiment of figure 5 can be modified so that an integral straw is provided as an extension of down tube 59 and a cap such as 32 of figure 1 is integrally connected by its handle 35 to stem portion 53.

In the embodiment of figure 11, the wider part of the bore of the base could be the upper part thereof, so as to enable the removable tubular part, including the straw 71 (or the internal tube such as 64 of figure 7), the connector tube 171 and the mouthpiece 78, to be extracted and reinserted from outside the pouch for cleaning and refilling purposes.

I claim:

1. A closure for a pouch for a fluid, in particular a beverage, said closure having a body provided with a through-bore for dispensing said fluid from the pouch (82) and being surrounded by a peripheral attachment face (13, 15) for sealed attachment to the periphery of an aperture in said pouch, characterized in that said body comprises a base (12, 50) which protrudes radially outwardly from at least one tubular portion (41, 31, 37; 49, 53, 57; 64, 65; 71, 74, 78) of said body, and said peripheral attachment face is formed around said base.

2. A closure according to claim 1, wherein said base is boat-shaped so as to be sealingly insertable between two sealed-attachment lips (81A, 81B) of a seal edge line of said pouch.

3. A closure according to claim 1 or 2, wherein said peripheral attachment face has at least one circumferentially extending rib (19A, 19B, 21).

4. A closure according to claim 1 or 2, wherein said peripheral attachment face has a series of parallel, circumferentially extending ribs (19A, 19B, 21).

5. A closure according to one of claims 1-4, wherein said at least one tubular portion extends outwardly of said pouch, with respect to the base, and said closure comprises a removable cover (32) which is engageable onto said tubular portion by a substantially axial movement.

6. The closure (10) of claim 5, wherein the cover (32) comprises a cap (33) and a flexible handle (35), said handle (35) being attached to said stem (31) and said cap (33).

7. A closure according to one of claim 1-6,

wherein the boat shaped base (12) has a point (17A, 17B) at each end with the two sides (13, 15) depending outwardly in opposite directions from a first point (17A) to a maximum amount, then curving around and inwardly a similar amount to the second point (17B).

8. A closure according to one of claims 1-7, wherein said tubular portion comprises a bucal mouthpiece (37, 57, 78).

9. A closure according to claim 8, wherein a stem (31, 53, 74) is provided between said base and said mouthpiece.

10. The closure (10) of claim 9, wherein the section of the stem (31) distant from the base (12) is chamfered.

11. A closure according to one of claims 1-10, wherein said at least one tubular portion comprises an internal tubular portion in the form of a plunger tube or straw (41, 61, 64, 71) intended to dip into the fluid contained in the pouch.

12. A closure according to one of claims 1-10, wherein said at least one tubular portion comprises an internal tubular portion (60) intended for frictional fitting of a plunger tube or straw (61) dipping into the fluid contained in the pouch.

13. A closure according to one of claims 1-12, wherein said base has a mounting bore (52, 77) which is wider than at least part of said through-bore, and at least part of said tubular portion is a removable tubular part (49; 64, 65; 74, 75; 71, 78, 171) which is removably secured in said wider bore of the base.

14- A closure according to claim 7, wherein said base has a mounting bore (52, 77) which is wider than at least part of said through-bore (58) in said mouthpiece (57, 78), and at least part of said tubular

portion is a removable tubular part (49; 64, 65; 74, 75; 71, 78, 171) which is removably secured in said wider bore of the base.

15. A closure according to claim 14, wherein said removable part also comprises a stem (53; 74) provided axially between said base (50) and said mouthpiece (57, 78).

16. A closure according to claim 15, wherein the stem (53) is integral with the mouthpiece (57).

17. A closure according to claim 15 or 16, wherein the stem is furthermore integral with an internal tubular portion (59, 71) in the form of at least part of a plunger tube or straw.

18. A closure according to claim 14, wherein said removable part also comprises an internal tubular portion (59, 71) in the form of at least part of a plunger tube or straw.

19. A closure according to claim 18, wherein said mouthpiece (57; 78) and said internal tubular portion (59; 71) are integrally connected to each other.

20. A closure according to claim 19, wherein said mouthpiece and said internal tubular portion are connected to each other by a connector pipe (171) extending through said base and through a stem (74, 94) provided axially between the base and the mouthpiece.

21. A closure according to claim 20, wherein the stem (94) is integral with the base (92).

22. A closure according to claim 20, wherein the stem (74) is removably mounted in the wider bore (88), separately from the mouthpiece (78).

23. A closure according to claim 22, wherein the stem (74) is secured in an external section (77U) of the wider bore (88) and the connector pipe (171) is secured in an internal section (77L) of the wider bore.

24. A closure according to anyone of claims 13-23, wherein the removable tubular part (49; 64, 65; 74, 75; 78, 171, 71; 73) is threadingly secured to the base.

25. A closure according to anyone of claims 13-24, wherein at least part of said tubular part is extractable from said base and re-insertable in said base from an outer side of said closure, whereby upon removal of said tubular part, said wider bore is available for fluid flow through the closure for cleaning and refilling purposes.

26. A container comprising a base according to one of claims 1-25 and a pouch, with the peripheral face (13, 15) of the base (12) of the closure being sealingly attached to the periphery of an aperture provided through the pouch.

27. A container according to claim 26, wherein the pouch (82) has two side walls which are terminated by two adjacent lips (81A, 81B) along at least one edge of said pouch, said lips being sealingly attached to each other along said edge except along a region, corresponding to the aperture, of the length of said edge, the base (12, 51, 92) of said closure being inserted between said lips in said aperture, with a first part (13) of said peripheral face of the base being sealingly attached to a first one (81A) of said lips and a second part (15) of said peripheral face of the base being sealingly attached to a second one (81B) of said lips.

28. A container according to claim 27, wherein the peripheral face (13, 15) of the base forms two opposed points (17A, 17B) each of which substantially coincides with a respective transition line (18A, 18B) between a respective edge portion of the pouch where both lips (81A, 81B) are directly

attached to each other and the aperture region where both lips (81A, 81B) are separated from each other by the base of the closure.

29. A container according to one of claims 26-28, wherein the pouch is a self-supporting stand-up pouch.

30. A container according to one of claims 26-29, wherein said edge of the pouch is an obliquely disposed upper-to-side corner edge of the pouch.

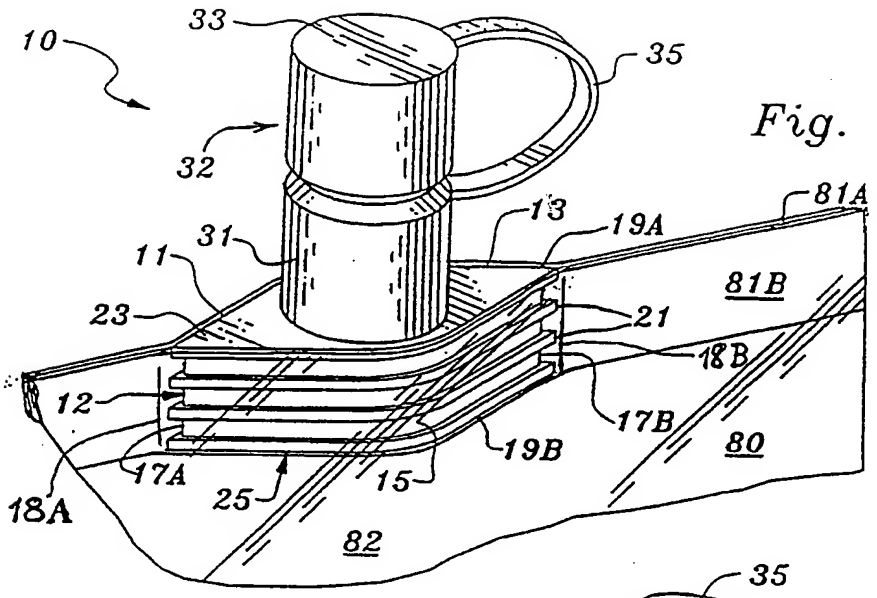



Fig. 1

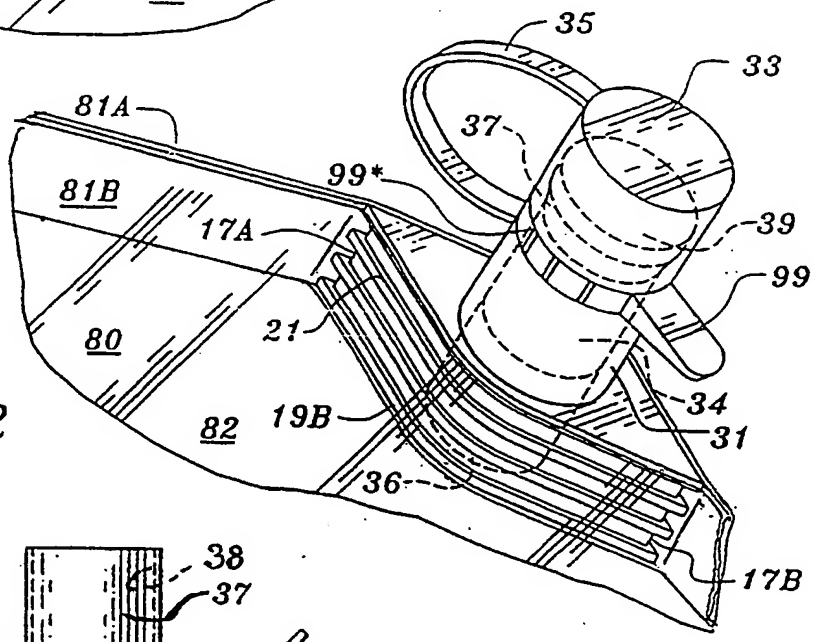



Fig. 2

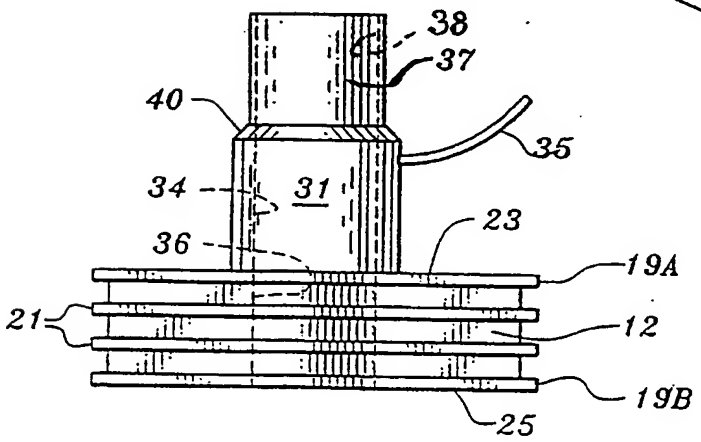



Fig. 3

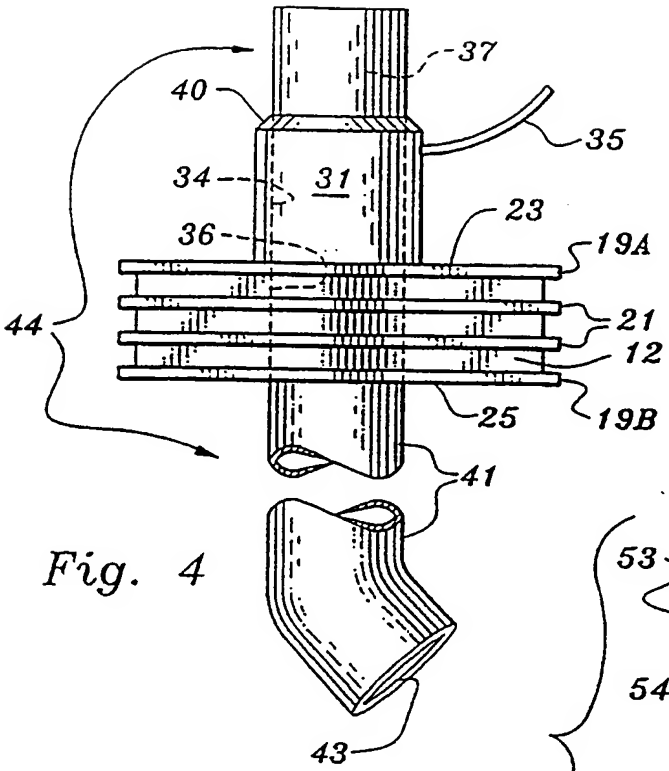



Fig. 4

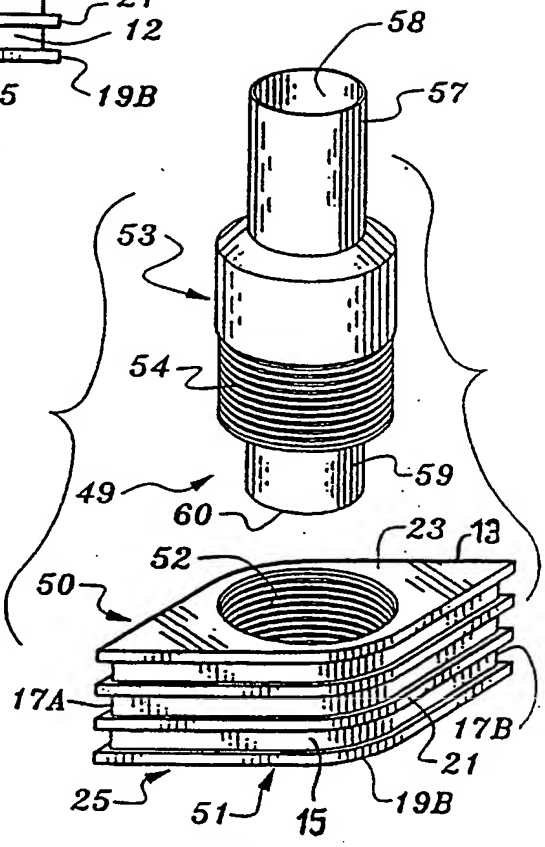



Fig. 5

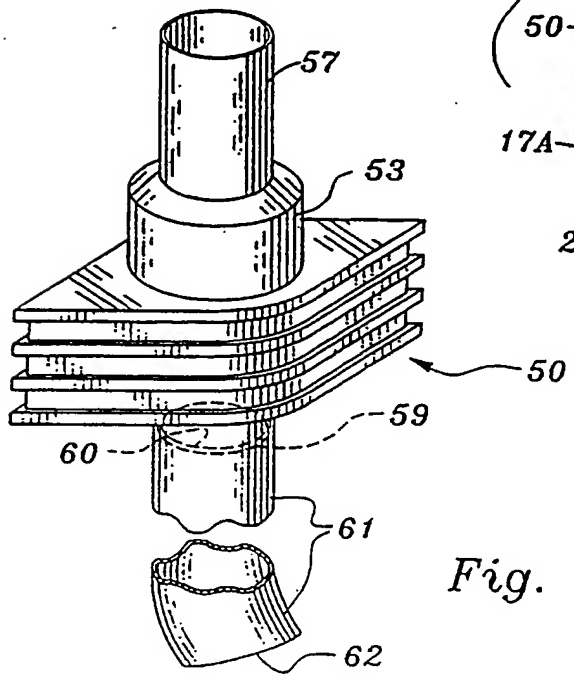



Fig. 6

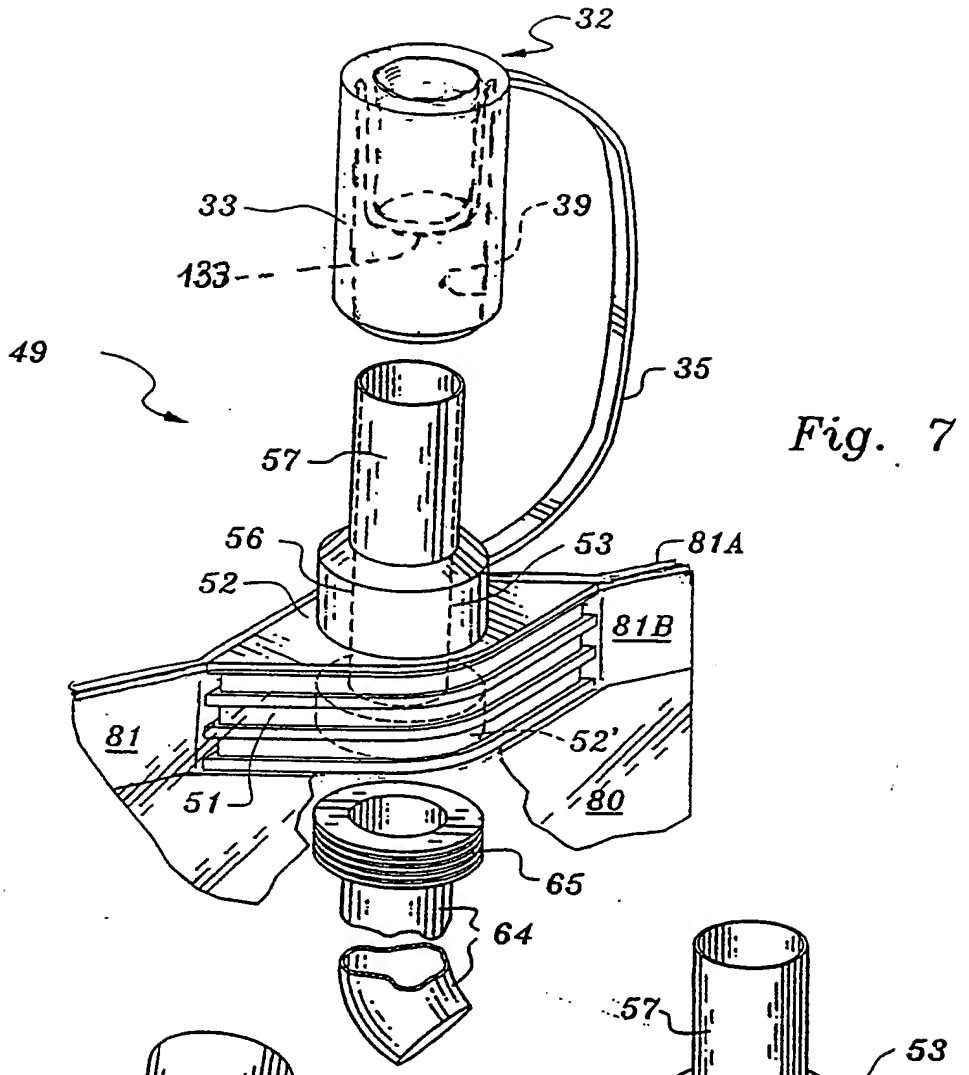



Fig. 7

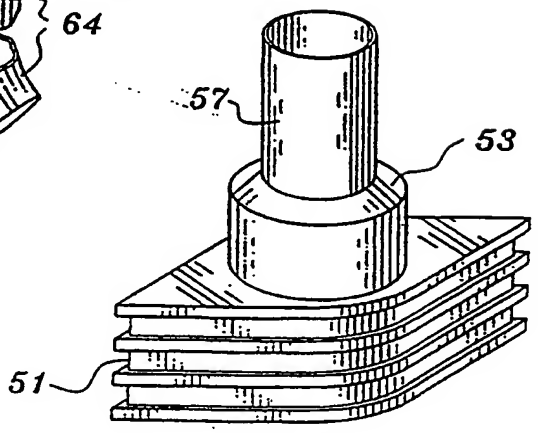



Fig. 8

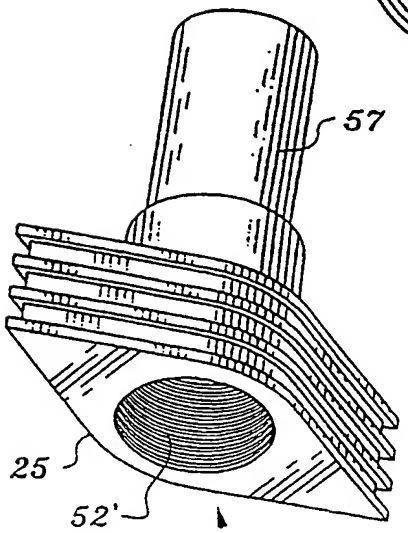



Fig. 9

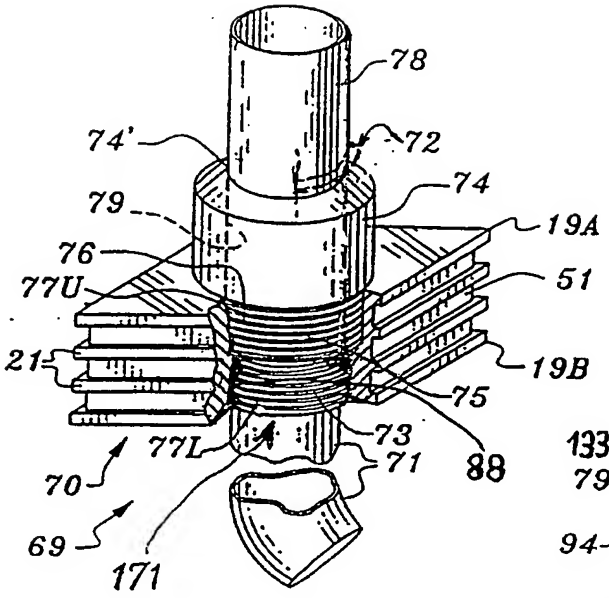



Fig. 10

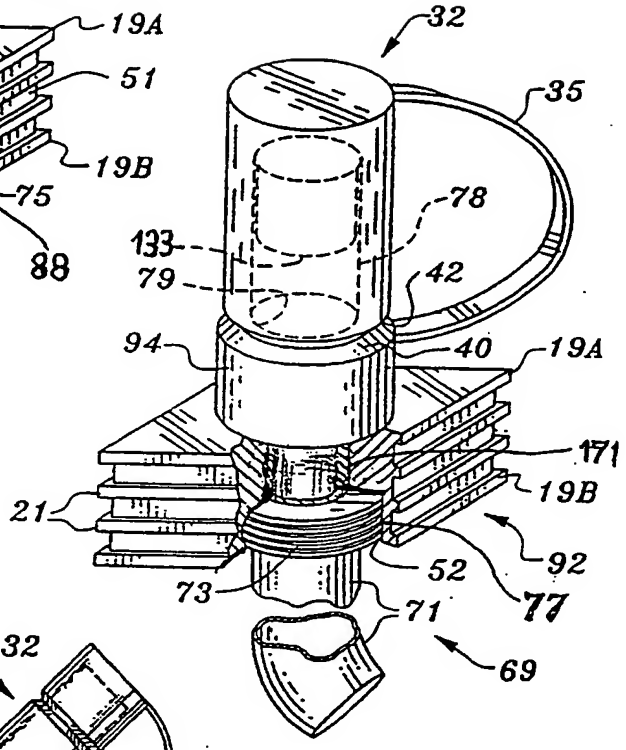



Fig. 11

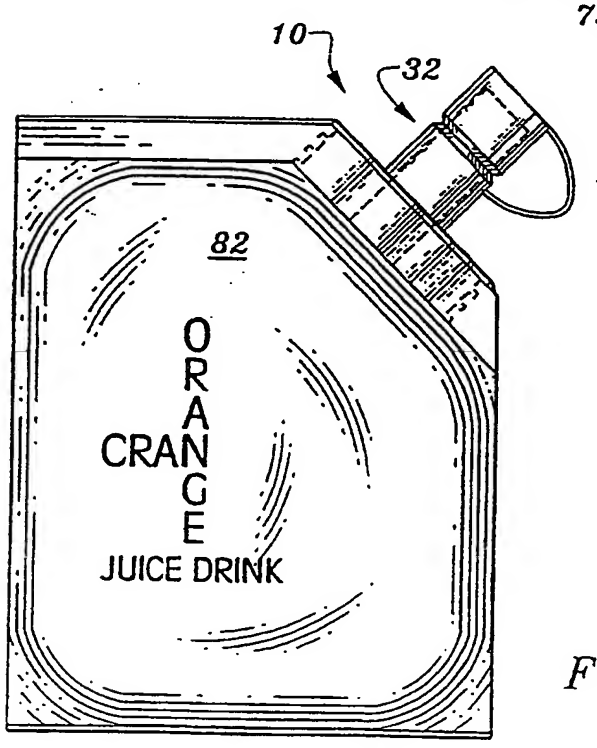



Fig. 12

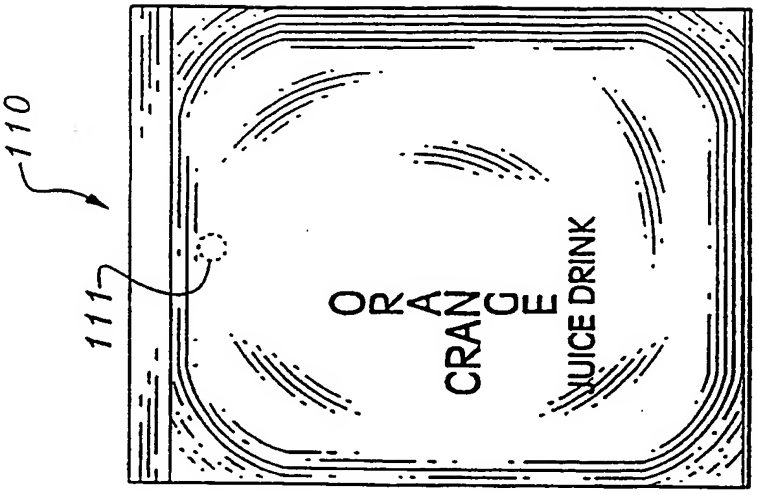



Fig. 15
(PRIOR ART)

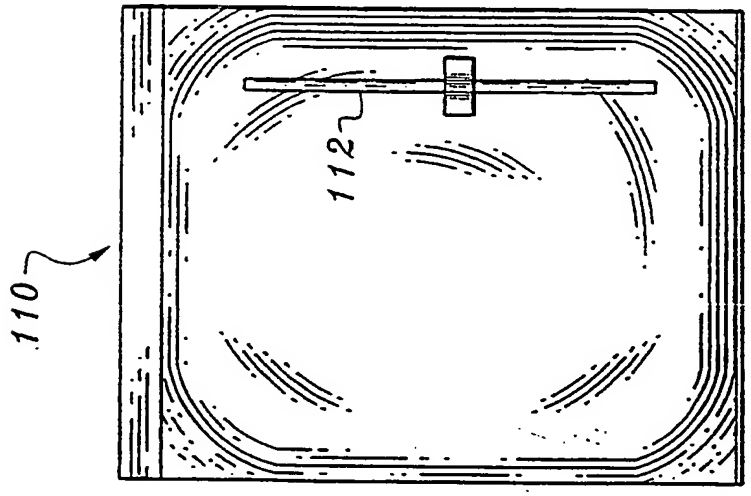



Fig. 14
(PRIOR ART)

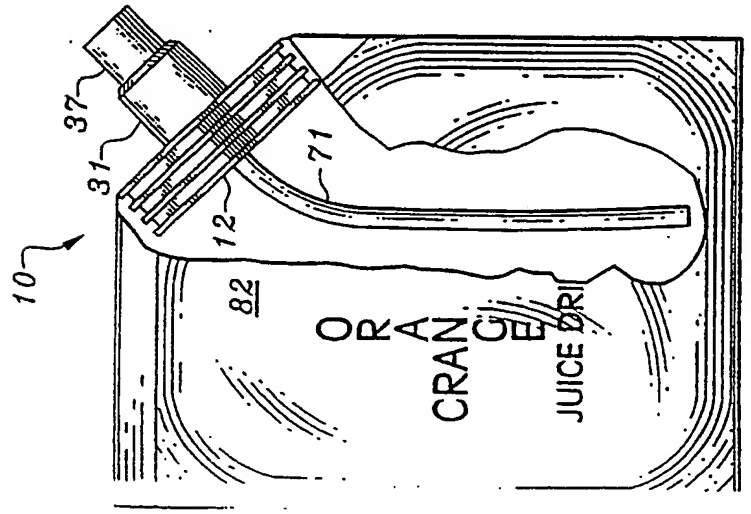



Fig. 13

# INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/EP 98/04239

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication,where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | US 4 732 299 A (HOYT EARL E) 22 March 1988<br>cited in the application<br>see column 1, line 54 - column 2, line 10;<br>figures | 1-30 |
| A | CH 680 358 A (MIFA AG FRENKENDORF)<br>14 August 1992<br>see the whole document | 1 |
| A | EP 0 763 482 A (DAINIPPON PRINTING CO LTD)<br>19 March 1997<br>see page 3, line 49 - page 4, line 45;<br>figures 1-5 | 1 |

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte .onal Application No
PCT/EP 98/04239

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| EP 0661208 A | 05-07-1995 | JP 7187202 A | 25-07-1995 |
| | | JP 7323478 A | 12-12-1995 |
| | | AU 672932 B | 17-10-1996 |
| | | AU 8036594 A | 06-07-1995 |
| | | CA 2138343 A | 28-06-1995 |
| | | DE 69403767 D | 17-07-1997 |
| | | DE 69403767 T | 09-10-1997 |
| | | ES 2105481 T | 16-10-1997 |
| | | US 5606844 A | 04-03-1997 |
| EP 0675050 A | 04-10-1995 | FR 2718113 A | 06-10-1995 |
| US 4783176 A | 08-11-1988 | AU 603127 B | 08-11-1990 |
| | | AU 7730287 A | 25-02-1988 |
| | | CN 1009725 B | 26-09-1990 |
| | | CN 1045742 A | 03-10-1990 |
| | | DE 3727972 A | 25-02-1988 |
| | | GB 2194507 A,B | 09-03-1988 |
| | | GB 2229992 A,B | 10-10-1990 |
| | | GB 2230510 A,B | 24-10-1990 |
| | | SG 11694 G | 15-04-1994 |
| | | SG 11794 G | 15-04-1994 |
| | | SG 11894 G | 15-04-1994 |
| US 4732299 A | 22-03-1988 | NONE | |
| CH 680358 A | 14-08-1992 | NONE | |
| EP 0763482 A | 19-03-1997 | JP 9249237 A | 22-09-1997 |
| | | CA 2185507 A | 15-03-1997 |